In response to the above rejections and in connection with the filing of a Request for Continued Examination (RCE) pursuant to 37 C.F.R. §1.114, Applicants have amended the claims which, when considered with the following remarks, is deemed to place the present application in condition for allowance. Favorable consideration of all pending claims is respectfully requested.

In the first instance, Applicants respectfully submit that the Sequence Listing has been amended to correct certain typographical errors. More specifically, Applicants have corrected two typographical errors in the nucleotide sequence of SEQ ID NO: 6 (human bcl-w) at nucleotide position 301, 404 and 405, as indicated in the attached marked-up copy of the amended Sequence Listing. Furthermore, the protein sequence in SEQ ID NO: 7 has been amended to correct two clerical errors appearing at positions 101 and 135. In addition, Applicants have corrected certain typographical errors in the nucleotide sequence of SEQ ID NO: 8 (murine bcl-w), as indicated in the attached marked-up copy of the amended Sequence Listing. The protein sequence in SEQ ID NO: 9 has been amended to correct certain clerical errors, as indicated in the attached marked-up copy of the amended sequence listing.

Applicants respectfully submit that the foregoing amendment does not introduce new matter. More specifically, the protein sequence of SEQ ID NO: 7 (human bcl-w) as amended is set forth in Figure 8 as originally filed. The protein sequence of SEQ ID NO: 9 (murine bcl-w) as amended is set forth in Figure 1 as originally filed. In addition, these protein sequences find support in Figures 9A and 9B of the priority document, Australian Provisional Application PN8965, filed on March 27, 1996. A courtesy copy of such priority document is enclosed for the Examiner's convenience (**Exhibit A**). The nucleotide sequences of SEQ ID NO: 6 and SEQ ID

NO: 8 as amended are also disclosed in Figure 9A and 9B, respectively, of the priority document.

Applicants further respectfully submit that the originally filed Figures 9A to 9B(iv), which set forth the nucleotide and protein sequences of human bcl-w and murine bcl-w, contain the same typographical errors as the original Sequence Listing. Accordingly, Applicants submit herewith substitute sheets of Figures 9A and 9B to replace the drawing sheets of Figures 9A to 9B(iv) originally filed. The substitute drawing of Figure 9B discloses the nucleotide sequence (SEQ ID NO: 6) and the encoded protein sequence (SEQ ID NO: 7) of human bcl-w. The substitute drawing of Figure 9B discloses the nucleotide sequence (SEQ ID NO: 8) and the encoded protein sequence (SEQ ID NO: 9) of murine bcl-w. These substitute sheets of drawings do not introduce new matter and are fully supported by the application as filed and by the priority document.

Turning to the claims, the Examiner rejects claims 1-4 under 35 U.S.C. §112, first paragraph as allegedly not enabled. The Examiner admits that the specification is enabling for an isolated nucleic acid molecule comprising SEQ ID NO: 6 or 8 which encodes the amino acid sequence of SEQ ID NO: 7 or 9. However, the Examiner contends that the specification does not provide enablement for all nucleic acid molecules encompassed by the claims. The Examiner states that the specification does not disclose any derivative of SEQ ID NO: 6 or 8, or a nucleic acid molecule encoding an amino acid sequence having at least 47% similarity to SEQ ID NO: 7 or 9, or a nucleic acid molecule which hybridizes under low stringency conditions to SEQ ID NO: 6 or 8 and which elicits a Bcl-w-related activity. It is the Examiner's opinion that it would take undue experimentation for those skilled in the art to practice the claimed invention.

Applicants respectfully disagree with the Examiner. Applicants respectfully submit that the present specification adequately teaches the molecules as claimed, including derivative and homologous sequences of SEQ ID NO: 6 or 8 that enhance cell survival. For example, the specification teaches the human bcl-w gene (SEQ ID NO: 6) and the murine bcl-w gene (SEQ ID NO: 8). The specification further teaches that the human Bcl-w protein and the murine Bcl-w share about 90% similarity. Moreover, the specification provides specific exemplification demonstrating that expression of the bcl-w gene enhances cell survival. See pages 35-36 of the specification. In light of the present teaching, those skilled in the art can isolate a nucleic acid molecule that either hybridizes to SEQ ID NO: 6 or 8, or encodes a protein that shares at least about 47% similarity to SEQ ID NO: 7 or 9, and determine whether the isolated molecule enhances cell survival. It is respectfully submitted that the experimentation required for those skilled in the art to make and use the claimed molecule is not undue.

However, in an effort to favorably advance the prosecution of the present case, Applicants have canceled claims 1-4 without prejudice, rendering the rejection thereof moot. Applicants reserve the right to pursue the subject matter of these canceled claims in a continuing application.

Applicants have also added claims 21-24, directed to nucleic acid molecules comprising SEQ ID NO: 6 or SEQ ID NO: 8, or encoding a protein having a sequence as set forth in SEQ ID NO: 7 or SEQ ID NO: 9. As the Examiner has acknowledged in the Final Action, the specification is enabling for these nucleic acid molecules.

Accordingly, withdrawal of the rejection of claims 1-4 under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claims 1 and 4 are rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 5,789,201 ("the '201 patent"). According to the Examiner, the '201 patent teaches nucleotide sequences encoding a bcl-2 homolog (bcl-y). The Examiner contends that the sequence search report provided by the Examiner shows that the human bcl-y gene of the '201 patent matches 97.4% to SEQ ID NO: 6 (human bcl-w) of the claimed invention, and 85% to SEQ ID NO: 8 (murine bcl-w) of the present invention; and that the human Bcl-y protein of the '201 patent matches 98.7% to SEQ ID NO: 7 (human Bcl-w).

It is respectfully submitted that the cancellation of claims 1-4 renders the rejection moot. Withdrawal of the rejection is therefore respectfully requested.

Applicants further submit that the nucleic acid molecules of claims 21-24 are not taught by the '201 patent. Applicants have provided herewith **Exhibit B**, illustrating the differences between the bcl-w sequences of the present application and the bcl-y sequences of the '201 patent. At page 1 of Exhibit B, the human bcl-w (SEQ ID NO: 7), the murine bcl-w (SEQ ID NO: 9), the human bcl-y of the '201 patent (SEQ ID NO: 4 of the '201 patent) and the rat bcl-y of the '201 patent are compared with one another. It is observed that the human bcl-w protein of the present application differs from the human bcl-y of the '201 patent at amino acid position 15, with Ala in human bcl-w and Glu in human bcl-y. The human bcl-w protein differs from the rat bcl-y of the '201 patent at amino acid position 7 ("A" in human bcl-w and "T" in rat bcl-y), position 124 ("E" in human bcl-w and "D" in rat bcl-y), and position 128 ("A" in human bcl-w and "T" in rat bcl-y). It is further observed that the murine bcl-w protein of the present application differs from the human bcl-y of the '201 patent at amino acid position 7 ("T" in murine bcl-w and "A" in human bcl-y), position 15 ("A" in murine bcl-w and "E" in human bcl-y), and position 124 ("D" in murine bcl-w and "E" in human bcl-y). The murine bcl-w protein of

the present application also differs from the rat bcl-y of the '201 patent at amino acid position 128 ("A" in murine bcl-w and "T" in rat bcl-y). Accordingly, protein sequences of SEQ ID NO: 7 and SEQ ID NO: 9 of the present application are not taught by the '201 patent, nor are the nucleic acid molecules encoding the protein of SEQ ID NO: 7 or SEQ ID NO: 9 (i.e., the subject matter of claims 21-22) taught by the '201 patent.

At page 2 of Exhibit B, the nucleotide sequence of the human bcl-w gene (SEQ ID NO: 6 of the present application) is compared with the human bcl-y and rat bcl-y genes of the '201 patent. Those nucleotides in the bcl-y genes which differ from the human bcl-w gene are indicated underneath the human bcl-w sequence. Clearly, the human bcl-w gene (SEQ ID NO: 6) of the present application is distinct from the human bcl-y and rat bcl-y genes of the '201 patent. Therefore, claim 23, drawn to a nucleic acid molecule comprising SEQ ID NO: 6, is not taught by the '201 patent.

Page 3 of Exhibit B illustrates the differences between the murine bcl-w gene (SEQ ID NO: 8) of the present application and the bcl-y genes of the '201 patent. Clearly, the murine bcl-w gene (SEQ ID NO: 8) of the present application is distinct from the human bcl-y and rat bcl-y genes of the '201 patent. Therefore, claim 24, drawn to a nucleic acid molecule comprising SEQ ID NO: 8 is not taught by the '201 patent.

Attached hereto is a marked-up copy of the amendment to the claims and to the Sequence Listing, entitled "Version with markings to show changes made"; a substitute paper and computer-readable copy of the Sequence Listing; a statement under §1.821(f) verifying that the content of the substitute paper copy and the substitute computer-readable copy of the Sequence Listing are the same; substitute sheets for Figures 9A and Figures 9B; Exhibit A and Exhibit B.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

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Registration No. 31,346

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Garden City, New York 11530
Telephone: 516-742-4343
FSD/XZ:ab

Enclosures: Marked up version of the amendment to the claims and the Sequence Listing
Substitute paper and computer-readable copy of the Sequence Listing
Statement under §1.821(f)
Substitute sheets of Figures 9A and 9B
Exhibit A: Priority Document (Australian Provisional Application PN8965)
Exhibit B: Comparison of bcl-w and bcl-y sequences

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claims 1-4 have been canceled without prejudice.

Claims 21-24 have been added:

21. An isolated nucleic acid molecule, wherein said nucleic acid molecule encodes a protein comprising an amino acid sequence as set forth in SEQ ID NO: 7.

22. An isolated nucleic acid molecule, wherein said nucleic acid molecule encodes the amino acid sequence as set forth in SEQ ID NO: 9.

23. An isolated nucleic acid molecule wherein said nucleic acid molecule comprises the nucleotide sequence as set forth in SEQ ID NO: 6.

24. An isolated nucleic acid molecule wherein said nucleic acid molecule comprises the nucleotide sequence as set forth in SEQ ID NO: 8.

In the Sequence Listing:

The sequences in SEQ ID NO: 6-9 have been amended as follows:

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<211> 583
<212> DNA
<213> HUMAN

<220>
<221> CDS
<222> (1)..(579)

<400> 6

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Met Ala Thr Pro Ala Ser Ala Pro Asp Thr Arg Ala Leu Val Ala Asp
  1               5                  10                  15

ttt gta ggt tat aag ctg agg cag aag ggt tat gtc tgt gga gct ggc   96
Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
             20                  25                  30

ccc ggg gag ggc cca gca gct gac ccg ctg cac caa gcc atg cgg gca   144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
         35                  40                  45

gct gga gat gag ttc gag acc cgc ttc cgg cgc acc ttc tct gat ctg   192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
     50                  55                  60

gcg gct cag ctg cat gtg acc cca ggc tca gcc cag caa cgc ttc acc   240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65                  70                  75                  80

cag gtc tcc gac gaa ctt ttt caa ggg ggc ccc aac tgg ggc cgc ctt   288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
                 85                  90                  95

gta gcc ttc ttt gtc ttt ggg gct gca ctg tgt gct gag agt gtc aac   336
Val Ala Phe Phe Leu Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
             100                 105                 110

aag gag atg gaa cca ctg gtg gga caa gtg cag gag tgg atg gtg gcc   384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
         115                 120                 125
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tac ctg gag acg cgg ctg gtt gac tgg atc cac agc agt ggg ggc tgg 432
Tyr Leu Glu Thr Arg Leu ~~Val~~ Ala Asp Trp Ile His Ser Ser Gly Gly Trp
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gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gcg cgg 480
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
145 150 155 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg 528
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
165 170 175

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
180 185 190

aag tgaa 583
Lys

<210> 7
<211> 193
<212> PRT
<213> HUMAN

<400> 7
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Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
20 25 30

Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
35 40 45

Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
50 55 60

Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
65 70 75 80

Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
85 90 95

Val Ala Phe Phe ~~Leu~~ Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
100 105 110

Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
115 120 125

Tyr Leu Glu Thr Arg Leu ~~Val~~ Ala Asp Trp Ile His Ser Ser Gly Gly Trp
130 135 140

Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
145 150 155 160

Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
165 170 175

Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
180 185 190

Lys

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<212> DNA
<213> Mouse

<220>
<221> CDS
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1 5 10 15

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                20                  25                  30

cct ggg gaa ggc cca gcc gcc gac ccg ctg cac caa gcc atg cgg gct  144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
            35                  40                  45

gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg  192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
        50                  55                  60

gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc  240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
    65                  70                  75                  80

cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt  288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
                85                  90                  95

gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac  336
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
            100                 105                 110

aaa gaa atg gag cct ttg gtg gga caa gtg cag gat tgg atg gtg gcc  384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Ile Val Ala
        115                 120                 125

tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg  432
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
    130                 135                 140

gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gca cgg  480
Ala Asp Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Asp Ala Arg
145                 150                 155                 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg gtg acg ggg  528
Arg Leu Arg Glu Gly Asn Trp Ala Val Ser Thr Val Val Thr Gly Ala
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(to next page)

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576

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aag tga 581 582

<210> 9

<211> 1973

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<213> Mouse

<400> 9

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1 5 10 15

Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly

20 25 30

Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala

35 40 45

Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu

50 55 60

Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr

65 70 75 80

Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu

85 90 95

Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn

100 105 110

Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp ~~Ile~~ Met Val Ala

115 120 125

Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp

130 135 140

Ala ~~Asp~~ Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu ~~Asp~~ Glu Ala Arg

145 150 155 160

Arg Leu Arg Glu Gly Asn Trp Ala ~~Val~~ Ser ~~Ser~~ Val ~~Thr~~ Arg ~~Val~~ Thr Val Leu Thr Gly

165 170 175

Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser

180 185 190

Lys

```
atg gcg acc cca gcc tcg gcc cca gac aca cgg gct ctg gtg gca gac   48
Met Ala Thr Pro Ala Ser Ala Pro Asp Thr Arg Ala Leu Val Ala Asp
 1               5                  10                  15

ttt gta ggt tat aag ctg agg cag aag ggt tat gtc tgt gga gct ggc   96
Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
            20                  25                  30

ccc ggg gag ggc cca gca gct gac ccg ctg cac caa gcc atg cgg gca  144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
        35                  40                  45

gct gga gat gag ttc gag acc cgc ttc cgg cgc acc ttc tct gat ctg  192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
    50                  55                  60

gcg gct cag ctg cat gtg acc cca ggc tca gcc cag caa cgc ttc acc  240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
65                  70                  75                  80

cag gtc tcc gac gaa ctt ttt caa ggg ggc ccc aac tgg ggc cgc ctt  288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
                85                  90                  95

gta gcc ttc ttt gtc ttt ggg gct gca ctg tgt gct gag agt gtc aac  336
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
            100                 105                 110

aag gag atg gaa cca ctg gtg gga caa gtg cag gag tgg atg gtg gcc  384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
        115                 120                 125

tac ctg gag acg cgg ctg gct gac tgg atc cac agc agt ggg ggc tgg  432
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
    130                 135                 140

gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gcg cgg  480
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
145                 150                 155                 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg  528
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
                165                 170                 175

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc  576
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
            180                 185                 190

aag tgaa                                                        583
Lys
```

Figure 9A

```
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ttt gta ggc tat agg ctg agg cag aag ggt tat gtc tgt gga gct ggc   96
Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
             20                  25                  30

cct ggg gaa ggc cca gcc gcc gac ccg ctg cac caa gcc atg cgg gct  144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
         35                  40                  45

gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg  192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
     50                  55                  60

gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc  240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65                  70                  75                  80

cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt  288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
                 85                  90                  95

gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac  336
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
            100                 105                 110

aaa gaa atg gag cct ttg gtg gga caa gtg cag gat tgg atg gtg gcc  384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala
        115                 120                 125

tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg  432
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
    130                 135                 140

gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gca cgg  480
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
145                 150                 155                 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg  528
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
                165                 170                 175

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc  576
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
            180                 185                 190

aag tga                                                         582
Lys
```

Figure 9B